

**TABLE 15-1 -- SERUM IMMUNOGLOBULIN LEVELS<sup>\*</sup>**

Age	IgG (mg/dL)	IgM (mg/dL)	IgA (mg/dL)	IgE (IU/ml)
Cord blood (term)	1121 (636–1606)	13 (6.3–25)	2.3 (1.4–3.6)	0.22 (0.04–1.28)
1 mo <sup>[II]</sup>	503 (251–906)	45 (20–87)	13 (1.3–53)	
6 wk				0.69 (0.08–6.12)
2 mo	365 (206–601)	46 (17–105)	15 (2.8–47)	
3 mo	334 (176–581)	49 (24–89)	17 (4.6–46)	0.82 (0.18–3.76)
4 mo	343 (196–558)	55 (27–101)	23 (4.4–73)	
5 mo	403 (172–814)	62 (33–108)	31 (8.1–84)	
6 mo	407 (215–704)	62 (35–102)	25 (8.1–68)	2.68 (0.44–16.3)
7–9 mo	475 (217–904)	80 (34–126)	36 (11–90)	2.36 (0.76–7.31)
10–12 mo	594 (294–1069)	82 (41–149)	40 (16–84)	
1 yr	679 (345–1213)	93 (43–173)	44 (14–106)	3.49 (0.80–15.2)
2 yr	685 (424–1051)	95 (48–168)	47 (14–123)	3.03 (0.31–29.5)
3 yr	728 (441–1135)	104 (47–200)	66 (22–159)	1.80 (0.19–16.9)
4–5 yr	780 (463–1236)	99 (43–196)	68 (25–154)	8.58 (1.07–68.9) <sup>[†]</sup>
6–8 yr	915 (633–1280)	107 (48–207)	90 (33–202)	12.89 (1.03–161.3) <sup>[‡]</sup>
9–10 yr	1007 (608–1572)	121 (52–242)	113 (45–236)	23.6 (0.98–570.6) <sup>[§]</sup>
14 yr				20.07 (2.06–195.2)
Adult	994 (639–1349)	156 (56–352)	171 (70–312)	13.2 (1.53–114)

From Kjellman NM et al: Serum IgE levels in healthy children quantified by a sandwich technique (PRIST). *Clin Allergy* 1976;6:51–59; Jolliff CR et al: Reference intervals for serum IgG, IgA, IgM, C3, and C4 as determined by rate nephelometry. *Clin Chem* 1982;28:126–128; and Zetterström O, Johansson SG: IgE concentrations measured by PRIST in serum of healthy adults and in patients with respiratory allergy: A diagnostic approach. *Allergy* 1981;36(8):537–547.

\* Numbers in parentheses are the 95% confidence intervals (CIs).

† IgE data for 4 yr.

‡ IgE data for 7 yr.

§ IgE data for 10 yr.

|| For data on LBW preterm infants, see Ballou M et al: Development of the immune system in very low birth weight (less than 1500 g) premature infants: Concentrations of plasma immunoglobulins and patterns of infections. *Pediatr Res* 1986;9:899–904.

**TABLE 15-2 -- SERUM IgG SUBCLASS LEVELS<sup>[\*]</sup>**

Age (yr)	IgG1 (mg/dL)	IgG2 (mg/dL)	IgG3 (mg/dL)	IgG4 (mg/dL)
0.5–1	290 (140–620)	58 (41–130)	41 (11–85)	0.2 (0–0.8)
1–1.5	350 (170–650)	62 (40–140)	42 (12–87)	3 (0–26)
1.5–2	400 (220–720)	80 (50–180)	44 (14–91)	7 (0–41)
2–3	450 (240–780)	95 (55–200)	46 (15–93)	14 (0–69)
3–4	480 (270–810)	115 (65–220)	48 (16–96)	20 (1–94)
4–6	500 (300–840)	130 (70–250)	50 (17–97)	26 (2–116)
6–9	570 (350–910)	170 (85–330)	54 (20–100)	37 (3–158)
9–12	600 (370–930)	210 (10–400)	58 (22–109)	47 (4–190)
12–18	580 (370–910)	260 (110–480)	63 (24–116)	49 (5–196)
Adult	500 (280–800)	300 (115–570)	64 (24–120)	35 (5–125)

From Schauer U et al: IgG subclass concentrations in certified reference material 470 and reference values for children and adults determined with the binding site reagents. *Clin Chem* 2003;49(11):1924–1929.

\* Numbers in parentheses are the 95% confidence intervals (CIs).

**TABLE 15-3 -- T AND B LYMPHOCYTES IN PERIPHERAL BLOOD**

Age	CD3 (Total T cell) Count <sup>[*]</sup> (%) <sup>[†]</sup>	CD4 count <sup>[*]</sup> (%) <sup>[†]</sup>	CD8 Count <sup>[*]</sup> (%) <sup>[†]</sup>	CD19 (B cell) Count <sup>[*]</sup> (%)
0–3 mo	2.50–5.50 (53–84)	1.60–4.00 (35–64)	0.56–1.70 (12–28)	0.12–2.10 (14–76)
3–6 mo	2.50–5.60 (51–77)	1.80–4.00 (35–56)	0.59–1.60 (12–23)	0.00–2.80 (00–84)
6–12 mo	1.90–5.90 (49–76)	1.40–4.30 (31–56)	0.50–1.70 (12–24)	0.02–2.30 (01–80)
1–2 yr	2.10–6.20 (53–75)	1.30–3.40 (32–51)	0.62–2.00 (14–30)	0.00–2.30 (00–80)
2–6 yr	1.40–3.70 (56–75)	0.70–2.20 (28–47)	0.49–1.30 (16–30)	0.02–1.40 (02–76)
6–12 yr	1.20–2.60 (60–76)	0.65–1.50 (31–47)	0.37–1.10 (18–35)	0.00–0.74 (00–67)
12–18 yr	1.00–2.20 (56–84)	0.53–1.30 (31–52)	0.33–0.92 (18–35)	0.00–0.39 (00–60)
Adult <sup>[‡]</sup>	0.70–2.10 (55–83)	0.30–1.40 (28–57)	0.20–0.90 (10–39)	0.10–0.50 (6–19)

From Shearer WT et al: Lymphocyte subsets in healthy children from birth through 18 years of age: The Pediatric AIDS Clinical Trials Group P1009 study. *J Allergy Clin Immunol* 2003;112: 973–980.

\* Absolute counts (number of cells per microliter  $\times 10^{-3}$ ).

† Normal values (10th to 90th percentile).

‡ From Comans-Bitter WM et al: Immunophenotyping of blood lymphocytes in childhood. Reference values for lymphocyte subpopulations. *J Pediatr* 1997;130(3):388–393.

**TABLE 15-4 -- SERUM COMPLEMENT LEVELS<sup>[8]</sup>**

Age	C3 (mg/dL)	C4 (mg/dL)
Cord blood (term)	83 (57–116)	13 (6.6–23)
1 mo	83 (53–124)	14 (7.0–25)
2 mo	96 (59–149)	15 (7.4–28)
3 mo	94 (64–131)	16 (8.7–27)
4 mo	107 (62–175)	19 (8.3–38)
5 mo	107 (64–167)	18 (7.1–36)
6 mo	115 (74–171)	21 (8.6–42)
7–9 mo	113 (75–166)	20 (9.5–37)
10–12 mo	126 (73–180)	22 (12–39)
1 yr	129 (84–174)	23 (12–40)
2 yr	120 (81–170)	19 (9.2–34)
3 yr	117 (77–171)	20 (9.7–36)
4–5 yr	121 (86–166)	21 (13–32)
6–8 yr	118 (88–155)	20 (12–32)
9–10 yr	134 (89–195)	22 (10–40)
Adult	125 (83–177)	28 (15–45)

*Modified from Jolliff CR et al: Reference values for serum IgG, IgA, IgM, C3, and C4 as determined by rate nephelometry. Clin Chem 1982;28:126–128.*

\* Numbers in parentheses are the 95% confidence intervals (CIs).